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December 6, 2000

VIA MESSENGER

Rebecca A. Burlingham
Senior Assistant Attorney General
Environmental Bureau
188 W. Randolph St., 20th Floor
Chicago, Illinois 60601

RE: People v. Nicor Inc. - 00 CH 12962 (Cook County)

Dear Ms. Burlingham:

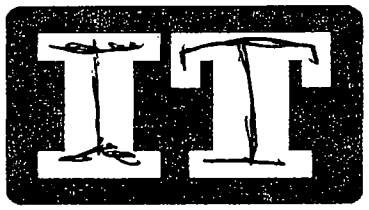
Enclosed is a copy of the IT Quality Assurance Report dated December 5, 2000 (N0017093 to N0017113) relating to the Nicor mercury restoration program. As we have discussed briefly, this is a status report on the implementation of the IT Quality Assurance Plan, a summary analysis of the data generated and recommendations for enhancing the plan's implementation.

In your November 28 letter, you referred to reports arising out of the quality assurance efforts. This enclosed report is the first periodic report from IT to Nicor. Obviously we have been in consistent contact with IT and exchanged, discussed and otherwise evaluated raw data on an on-going basis. Under the work plan that information is appropriately deemed to be internal working information and it is not intended to be distributed in the public domain. However, there is no question that the periodic reports such as the one which is enclosed, are meant for review of the Attorney General's Task Force.

Sincerely,

John C. Berghoff, Jr.

JCB:jmr
Enclosure



IT CORPORATION

A Member of The IT Group

NICOR
MERCURY RESTORATION PROGRAM

QUALITY ASSURANCE REPORT

Patricia A. Gallery

Patricia A. Gallery
IT Corporate Quality Assurance Officer

December 5, 2000
IT Project 990534

N0017093

EXECUTIVE SUMMARY

IT Corporation (IT) prepared a Quality Assurance/Quality Control (QA/QC) Plan to be used in support of Nicor's program to inspect, instrument screen, and where necessary, cleanup and perform final clearance on homes where mercury was potentially present from old-style regulators. This Quality Assurance Report presents a status report on the implementation of the Plan, as well as an analysis of the data generated.

From the last week of September to mid-October, IT staffed, subcontracted and trained to reach the requisite staffing levels to fully implement the procedures and requirements of the Plan. QA data generated from the entire program was analyzed and the results are contained in this report.

IT feels that the overall QA/QC program is sound and the implementation of the program is in accordance with the Plan, and Nicor is conducting its activities in accordance with its work plan.

Instrument Quality Control

IT developed a comprehensive inventory and database for all mercury screening instruments. In order to track calibration and functional test dates and information, as well as model, serial number and maintenance history. IT also established a Jerome meter Maintenance Shop to perform manufacturer-authorized repairs, minimizing downtime and increasing utilization on each instrument.

Visual Inspection

IT QA Supervisors are to perform one weekly observation of a visual inspection per Nicor inspector, as well as one re-inspection of a "not involved" residence per Nicor inspector per day. Instances where an IT QA Supervisor does not agree with the Nicor "not involved" determination was considered an error. In early October, IT began to notice there were problems associated with this approach. Many Nicor inspectors had years of practical experience and expertise on gas distribution systems and often were able to classify residences as "not involved" based on this knowledge and expertise. Using the visual training only, IT QA Supervisors were in many instances unable to replicate the Nicor inspector's determination. IT concluded that the approach taken for the quality assurance evaluation of the "not involved" residences was not a consistent and accurate reflection of whether the residence was correctly classified as "involved" or "not involved". IT was measuring how the Nicor inspector performed against the training criteria only. Measurement of performance against the training criteria would negate the experience and institutional knowledge of the Nicor inspectors. To determine the true "not involved" status of

these residences, IT recommends an alternative, objective assessment based on instrument screening statistics.

Instrument Screening

In parallel with the QA performed on the "not involved" residences, IT QA Supervisors performed weekly observations and daily re-inspections on one "instrument cleared" residence per inspector per day. Data from these inspections was used to generate an error rate for the instrument inspections. By November 11th, the instrument clear rate had declined to the low rate boundary and continues to trend down. The upper 95% confidence level for instrument clear error rate is below 0.5%. Based on this data, IT recommends a revision to the Plan as discussed below.

Cleanup Quality Assurance

IT implemented a QA program for cleanup activities that standardized procedures and practices. IT Quality Assurance Supervisors provided active oversight of the contractor clean up crews to identify substandard crews and subcontractors with high Lumex screening failure rates. Overall, the average duration from identification of a residence requiring cleanup to the successful completion of cleanup has been reduced 13 days.

Recommendations

IT feels that the overall QA/QC program is sound and the implementation of the program is in accordance with the Plan. However, based on our experience and results to date, we recommend the following two enhancements to the Plan:

(1) To determine the true error rate for the "not involved" homes, IT recommends that instrument screening be conducted on a statistically representative, geographically stratified sample of residences initially classified as "not involved". The results of these instrument screens will be analyzed to assess the impact of the "not involved" classification. YES

(2) Reduce instrument screening inspections in a two-step process. In the first step, IT proposes to reduce QA inspections to two (2) instrument clear residences per week for each instrument inspector. If the rate continues to remain below the low rate boundary for a two week period at the reduced quality inspection rate, then IT proposes implementing the second step, to reduce to one (1) instrument clear residence per week for each instrument inspector for the remainder of the program. This will adjust the frequency of inspections to that which was originally anticipated in the Plan.

INTRODUCTION

IT Corporation (IT) prepared a Quality Assurance/Quality Control (QA/QC) Plan to be used in support of Nicor's program to inspect the homes of its customers for the presence of mercury associated with old-style mercury regulators and in support of any necessary property cleanup and final clearance activities. The purpose of the Plan is to ensure that screening and property cleanup activities are performed in accordance with established plans, procedures, protocols, and are appropriately documented. The major components of the Plan address:

- Residential inspections, for both "not involved" and "instrument clear" residences;
- Quality control measures on the instruments used;
- Additional quality assurance measures implemented to resolve potential Jerome meter interferences;
- Cleanup oversight,
- Final clearance data validation and oversight;
- Data entry/input review;
- Document control and records management;
- Waste transportation and disposal management;
- Oversight of cleanup activities at Nicor industrial/commercial customer sites, and
- Health and safety.

This Quality Assurance (QA) report presents a status report on the implementation of the Plan as well as an analysis of the data generated. We feel now is the appropriate time to report on the program, as there has been sufficient time to properly staff, train, and implement the Plan, as well as analyze data generated and make recommendations for future actions.

During the last week of September, IT developed and finalized the QA/QC Plan for the project. The Plan has been updated and revised during October and November to augment and/or clarify procedures as well as reflect input from the IT Quality Assurance personnel in the field.

GET REVISIONS

During the first two weeks of October, IT began to staff the quality assurance functions and train those individuals. By late October, we had reached the requisite staffing levels to fully

implement the procedure and requirements as outlined in the Plan. QA data generated from the entire program was analyzed.

We feel that the overall QA/QC program is sound and the implementation of the program ensures that screening and property cleanup activities are performed in accordance with established plans, procedures, protocols, and are appropriately documented.

Report Organization

The evaluation and assessment of the quality assurance data generated by the quality control of the screening instruments, inspection quality assurance activities, both visual and instrument screening, cleanup quality assurance activities, and final clearance quality assurance activities are discussed below. IT's recommendations, based on these data and their evaluation, follows as a final section.

INSTRUMENT QUALITY CONTROL

Inventory

IT developed a comprehensive inventory for the mercury screening instruments. This includes all Jerome, VM-3000, Nippon, Lumex, and MVI mercury analyzers used to screen for mercury vapor levels during inspection and/or cleanup activities. Information consolidated within this inventory included equipment calibration information, functional test information (as applicable to the Jerome meters), equipment model and serial numbers, and maintenance information. This inventory, and the information contained within it, is updated daily to reflect current information and status of the screening equipment.

The database for this inventory is used by IT to generate reports which identify equipment due for either functional test or manufacturer's re-calibration; provide the maintenance history of a particular instrument; and identify when an instrument sent back to the manufacturer exceeds the original repair time estimate.

Jerome Weekly Function Tests

Functional tests are conducted on each Jerome meter on a weekly basis. IT has consolidated the weekly functional test paperwork into a central location. This paperwork is randomly checked to ensure that the tests are conducted in accordance with the manufacturer's guidelines. Electronic worksheets for the weekly functional tests were developed and distributed to the Nicor inspection offices. These worksheets automatically calculate functional test pass/fail criteria. IT and Nicor developed a color-coding system, using colored adhesive labels, changed weekly, to visually reflect when a functional test was last performed on a Jerome meter.

Equipment Labeling

IT has established an on-site record keeping system at each of the seven Nicor inspection offices. Calibration certificates and the most recent functional test documentation for each Jerome meter are maintained at the appropriate Nicor inspection office. Copies of this paperwork for each Jerome meter are included in an all-weather envelope attached to the bottom of the meter. This

labeling ensures the instrument user is cognizant of the quality control status of the instrument and that the paperwork is readily available for a field audit of the equipment.

Equipment Maintenance

To increase the utilization and minimize down time for the Jerome meters, IT established a Jerome Meter Maintenance Shop to perform manufacturer-authorized repairs on Jerome meters and oversee the shipment of Jerome meters to the manufacturer for calibration or repair.

INSPECTION

Visual Inspection

Process Review/Oversight

IT Quality Assurance Supervisors performed the weekly observations on each Inspector performing visual inspections since mid-October. The Visual Survey Quality Assurance Review Checklists have been completed as part of this weekly observation. Any discrepancy noted on the form was reviewed for further action. Most of the discrepancies were procedural in nature and were addressed during the inspection. No major discrepancies were noted on these forms.

Repetition of "Not Involved" Residences

IT Quality Assurance Supervisors attempted to inspect one "not involved" residence for each Inspector per day. This goal was met in late October. From late October through mid November, Nicor had an average of 123 inspectors reporting a "not involved" residence per day. During this period, IT averaged 115 inspections of "not involved" residences per day. A Property Survey Quality Assurance Review Checklist was completed for each IT inspection. The IT Quality Assurance Supervisor would evaluate whether or not the residence was "not involved", based on his/her understanding of the guidelines covered in the Nicor training. Instances where the IT Quality Assurance Supervisor did not agree with the "not involved" determination made by the Nicor inspector were considered visual inspection errors. The information on these inspection checklists was used to generate and track the error rate for the

visual inspections.

In early October, IT began to notice that there were apparent problems associated with this approach. Initially, IT thought that the apparent problems may have been due to changes in the Nicor visual inspection training that had occurred during the course of the Mercury Restoration Program. These changes were based on feedback from the Nicor inspectors. By the end of October, over 800 "not involved" residences were inspected by an IT Quality Assurance Supervisor. To search for the root cause of the differences identified in these quality assurance inspections, the residences where the IT Quality Inspection Supervisor disagreed with the initial Nicor "not involved" classification were inspected again by another IT Quality Assurance Supervisor. The Quality Assurance Supervisor did not always come to the same conclusion as the initial Supervisor. This indicated that visual inspection errors could also be attributed to IT QA Supervisors.

Looking into these potential differences by the IT Quality Assurance Supervisors, IT determined that a number of factors affected the evaluation of Nicor's inspectors, resulting in an artificially high error rate for the residences classified as "not involved". These factors included, but were not limited to, experience, knowledge gaps, and inspector interpretation. The Nicor inspectors often had years of practical experience and expertise on gas distribution systems. IT Quality Assurance Supervisors, like any outside QA consultant, had no independent knowledge of Nicor's residential equipment. Many Nicor inspectors were often able to classify residences as "not involved" based on this knowledge and experience. In some instances, the Nicor inspectors obtained information on the residence or the position of the regulator from the homeowner and this information could not be verified at later re-inspection by the IT Quality Assurance Supervisor. Further, some of the criteria, such as the presence of "up and over" or "down and under" piping configurations, required the Nicor inspectors to interpret whether the residence was involved. This need for interpretation made the quality assurance evaluation difficult to replicate.

In early November, Nicor re-trained all the inspectors, and re-inspected approximately 7,000 residences. The re-inspection was used to quantify the effect of these factors on the apparent

visual inspection error rate. The initial classification of these residences as "not involved" was confirmed in almost all of the re-inspected residences.

IT's conclusion is that the initial approach taken for the quality assurance evaluation of the "not involved" residences was ineffective. The initial approach measured how the Nicor inspector performed against the training criteria, not whether the residence was correctly classified as "involved" or "not involved". Measurement of performance against the training criteria would negate the experience and institutional knowledge of the Nicor inspectors.

IT recommends an alternative quality assurance assessment be used as discussed in a separate section.

Instrument Screening

Document Review

IT provides oversight on the data input from the Mercury Screening Records to the Nicor database. Each form is reviewed for documentation completeness, required instrument checks and calibrations, and reasonableness of the data. If any data is missing or incomplete, the instrument operator is contacted to obtain additional information.

Process Review/Oversight

IT Quality Assurance Supervisors performed the weekly observations on each Inspector performing instrument screening inspections. The Mercury Screening Quality Assurance Checklists have been completed as part of this weekly observation. Any discrepancy noted on the form was reviewed for further action. Most of the discrepancies were procedural in nature and were addressed during the inspection. No major discrepancies were noted on these forms.

Repetition of "Instrument Cleared" Residences

IT Quality Assurance Supervisors attempted to inspect one "instrument cleared" residence for each Inspector per day. This goal has been met since early November. A Jerome Mercury

Screening QA Record form was completed for each inspection. The IT Quality Assurance Supervisor would evaluate whether or not the residence was "instrument cleared", based on his/her understanding of the guidelines covered in the Nicor training. Instances where the IT Quality Assurance Supervisor did not agree with the "instrument cleared" determination made by the Nicor inspector were considered instrument screening errors.

IT used a modified form of the sequential binomial test for control of clearance errors and verification of acceptably low error rates. In its guidance document Statistical Methods for Evaluating the Attainment of Superfund Cleanup Standards, USEPA [USEPA 1989] advocates the use of sequential hypothesis testing for the testing of percentiles and proportions. The sequential binomial test used is a member of a class of sequential tests known as Sequential Probability Ratio Tests (SPRT). IT's modifications to the sequential binomial test procedure were:

- the test statistic will be used as a quality indicator, so that observations will not be terminated until all inspections have been completed
- the test statistic passing the low rate boundary at any time will be taken as strongly indicating that instrument clearance error rates are acceptably low
- three consecutive points moving closer to the fail decision boundary will trigger a corrective action investigation
- the test statistic passing the high rate boundary at any time will be taken as strongly indicating the need for corrective action, including rechecking residences, retraining inspectors or releasing inspectors.

Each instrument inspector has one of his/her instrument clear residences quality assurance checked for each day that he/she works. This quality assurance data is analyzed using SPRT. For the SPRT of the quality assurance inspections of instrument clear residences, $Z_{J,m}$ was calculated as:

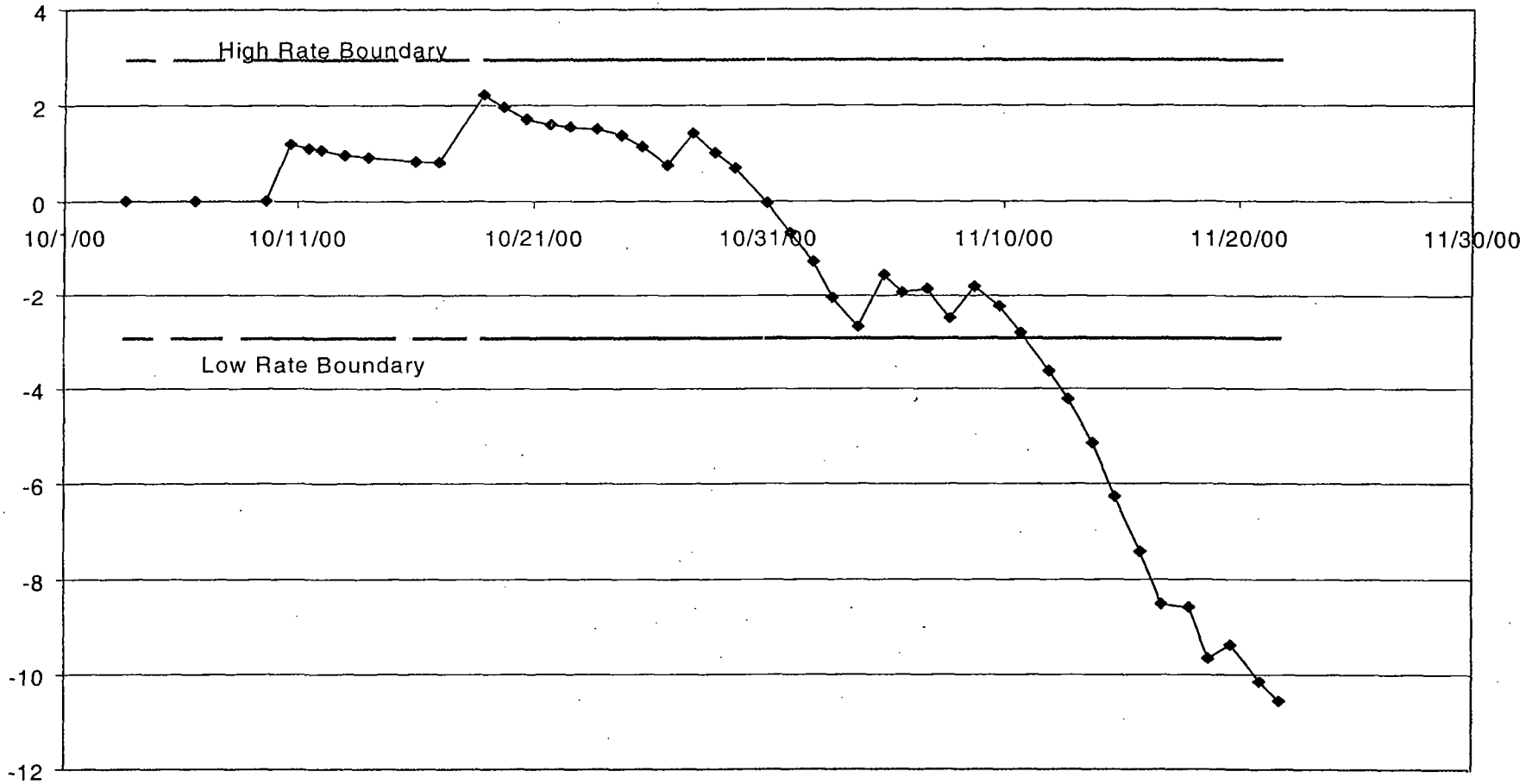
$$Z_{J,m} = \begin{cases} N_{J,m}\left\{\hat{p}_{J,m}\left[-4.605 - \ln \hat{p}_{J,m}\right] + \left(1-\hat{p}_{J,m}\right)\left[-0.01005 - \ln\left(1-\hat{p}_{J,m}\right)\right]\right\}, \text{ for } \hat{p}_{J,m} \le 0.005 \\ N_{J,m}\left\{0.6931\hat{p}_{J,m} - 0.005038\left(1-\hat{p}_{J,m}\right)\right\}, \text{ for } 0.005 < \hat{p}_{J,m} < 0.01 \\ N_{J,m}\left\{\hat{p}_{J,m}\left[\ln \hat{p}_{J,m} + 5.298\right] + \left(1-\hat{p}_{J,m}\right)\left[\ln\left(1-\hat{p}_{J,m}\right) + 0.005013\right]\right\}, \text{ for } 0.01 \le \hat{p}_{J,m} \end{cases}$$

$Z_{J,m}$ was then charted against the limits 2.94 (high boundary) and –2.94 (low boundary).

It should be noted that $Z_{J,m}$ for any date is calculated on the quality assurance inspection data cumulative to, and including, that date. Therefore, $Z_{J,m}$ is considered to be averaged over the course of the quality assurance inspection program. The following graph shows the progress of $Z_{J,m}$ over the project to date.

As depicted on the graph, at no point during the project has the high rate boundary been exceeded. The three upward spikes shown prior to October 31 were all single errors detected on those dates by the quality assurance inspections. Since these occurred relatively early in our QA inspections, IT decided to monitor $Z_{J,m}$ over the following days before initiating any corrective actions. The subsequent decline of $Z_{J,m}$ over the following 6 days indicated that this was a prudent decision. By November 11th, $Z_{J,m}$ had declined to the low rate boundary and continues to trend downward, indicating that the instrument clearance error rate is acceptably low. At the present time, the 95% upper confidence level for the instrument screening error rate is below 0.5%.

Figure 1. Instrument Clear Control Chart



N0017104

Investigation of Potential Interferences

IT Quality Assurance Supervisors participated in rechecking residences where elevated readings during the initial Jerome meter screening may have been due to the presence of interferences. These interferences encountered for the Jerome meters included ammonia from animal wastes or cleaning supplies, chlorine vapors from cleaning supplies and laundry products, cooking odors, and sulfides from sumps and drains. Initially, the rechecking was accomplished using a different model Jerome meters (e.g., rechecking with a 431-X when the initial screening was conducted with a 411).

As other mercury vapor analyzers (Nippon, MVI, VM-3000, etc.) were identified and obtained, these instrument were used for re-screening at residences where potential interferences were suspected for the Jerome meters. Since these other mercury vapor analyzers utilize adsorption of monochromatic light instead of electrical potential differences between gold foils, the potential interferences for the Jerome meters are not likely to affect these other mercury vapor analyzers. At this time, potential interferences encountered during Jerome screening at a residence are resolved in real time.

Cleanup Quality Assurance

Cleanup Quality Assurance Program

IT has implemented a quality assurance program for the cleanup activities at mercury-impacted residences. The elements of the program include:

- Standardization of cleanup procedures and practices,
- Standardization of contractor cleanup crew composition,
- Standardization of contractor cleanup crew equipment,
- Centralization of cleanup scheduling,
- Active oversight of contractor cleanup crews,
- Identification and removal of substandard contractor crews,
- Implementation of process improvement plans for contractors with high Lumex screening failure rates,

- Preferential scheduling of cleanup work to contractors with low Lumex screening failure rates,
- Incorporation of lessons learned from contractor cleanup experience, and
- Early identification of residences which pose a problem to effective cleanup.

The cleanup procedures and practices and the personnel and equipment for a cleanup crew were standardized to allow uniformity among the various cleanup contractors, while maintaining flexibility for contractors to adjust to the differing conditions at each residence. IT undertook the central scheduling of cleanup activities to optimize the utilization of the available contractor cleanup crews.

The implementation of these standardized cleanup procedures and practices has been facilitated by the active oversight of the contractor cleanup crews by the IT Cleanup Quality Assurance Supervisors. This oversight effectively identified substandard cleanup crews and cleanup contractors with high Lumex screening failure rates. The substandard cleanup crews were either retrained in the proper procedures and practices, properly staffed and equipped, or removed. The cleanup quality assurance program requires cleanup contractors with high Lumex screening rates to prepare and submit process improvement plans. These plans are designed to have the contractor address deficiencies and implement corrective actions. Failure to improve cleanup efficacy after the implementation of the process improvement plans has resulted in the elimination of cleanup contractors from the Mercury Restoration Project.

As an incentive to reduce Lumex screening failure rates, IT preferentially schedules cleanup work to those contractors with low Lumex screening failure rates.

Weekly cleanup contractor meetings have been chaired by IT to allow the lessons learned by the cleanup contractors to be discussed and shared among those contractors. These meetings allow information on effective practices to be disseminated among the cleanup contractors.

To assist the contractor cleanup crews, the IT Cleanup Quality Assurance Supervisors have been providing early identification of residences which pose a problem to cleanup. These problems

include cluttered basements, floors with loose or lifting tiles, cracked or spalling concrete and stucco, and the presence of unsafe working conditions. The residences are identified before the contractor cleanup crew initiates work and a residence-specific plan for dealing with these problems is determined.

Impact of Cleanup Quality Assurance Program

As a result of these cleanup quality assurance activities, the average time from the identification of a mercury-impacted residence to the completion and verification of the cleanup at the residence has declined. The average time period from the identification of a residence requiring cleanup to the initiation of cleanup activities has decreased from 4 days in early October to 1 day at the end of November. During the same time period, average time from the start of cleanup activities at residence to the completion of the cleanup activities has decreased from 8 days to 3 days. The average time period from the completion of cleanup activities to the verification of cleanup by Lumex screening has been reduced from 6 days in early October to less than 1 day at the end of November. Overall, the average duration from identification of a residence requiring cleanup to the verification of the cleanup has been reduced 18 days to 5 days by the implementation of IT's cleanup quality assurance procedures.

Besides impacting the average duration of the cleanup activities, the implementation of the cleanup quality assurance program has also positively impacted the efficacy of the cleanup activities. In early October, 40% of the completed cleanups at residences failed the Lumex screening verification. By early November, the Lumex screening failure rate was reduced to 11% and has steadily fallen through the end of November. The decrease in the Lumex screening failure rate demonstrates that the cleanup quality assurance program has greatly increased the efficacy of the cleanup activities.

FINAL CLEARANCE

Sample Collection Observation

IT Final Clearance Quality Assurance Supervisors have observed at least one Final Clearance sampling event for each sampling team every week. Final Clearance (Hopcalite) Quality Assurance Review Checklists have been completed as part of this weekly observation. Any discrepancy noted on the checklist has been reviewed with the sampling team. Most of the discrepancies were procedural in nature and were addressed during the inspection. No major discrepancies were noted on these checklists.

Report/Laboratory Analysis Review

IT conducts reviews on 100% of the final clearance report, including the laboratory data. Each report is reviewed for completeness, correspondence between sample identifiers and volumes in the report and supporting documentation, laboratory results, laboratory quality control, and instrument calibration. A Final Clearance (Hopcalite) Preliminary Data Quality Checklist and a Final Clearance (Hopcalite) Package Data Quality Checklist were generated for the review of each final clearance report. Any discrepancy noted on these checklists has been reviewed with the sampling team and laboratory personnel. Most of the discrepancies were procedural in nature and were addressed with the final clearance contractor. No major discrepancies were noted on these review checklists.

RECOMMENDATIONS

Instrument Quality Control

At this time, IT recommends that the instrument quality control program continue to proceed. The inventory allows tracking of the calibration, functional test, model and serial number, and maintenance information for each piece of mercury screening equipment. The color-coded labeling for functional test status and storage of calibration and functional test documentation with Jerome meters allows timely audits of equipment operational status in the field. The Jerome Meter Maintenance Shop increases the utilization of these meters and effectively tracks meters undergoing manufacturer's calibration.

Visual Inspection Quality Assurance

Since the true error rate for the "not involved" residences could not be determined using the original approach in the QA/QC plan, IT recommends that an alternative quality assurance assessment be used. The purpose of the visual inspections was to separate residences which had a low probability of being impacted by mercury from those residences which had a higher probability of being impacted by mercury, thus requiring further investigation.

IT strongly recommends that instrument screening be conducted on a statistically representative, geographically stratified sample of residences initially classified as "not involved". IT has determined that a sample size of 6,100 residences will provide the necessary data. A significantly and statistically low "true" error rate for the "not involved" population would suggest that the criteria used by the Nicor inspectors correctly segregated residences with a low probability of being impacted by mercury, regardless as to whether others could verify the application of the criteria. The use of instrument screening will return the QA evaluation of the "not involved" residences to an objective basis.

Instrument Screening Quality Assurance

Based on the trend of $Z_{J,m}$, IT recommends reducing the level of quality assurance inspections of instrument clear residences. Instead of inspecting one instrument clear residence per day for each instrument inspector, IT proposes reducing inspections in a two-step process. In the first step, IT proposes to reduce QA inspections to two (2) instrument clear residences per week for each instrument inspector. If the rate continues to remain below the low rate boundary for a two week period at the reduced quality inspection rate, then IT proposes implementing the second step, to reduce to one (1) instrument clear residence per week for each instrument inspector for the remainder of the program.

Besides the trend of $Z_{J,m}$, another reason for contemplating a reduction in the re-inspection rate is that the daily production rate for the instrument screening has averaged near 12 residences per day per inspector, well below the anticipate rate of 24 to 30 per day. Since one instrument clear residence is re-inspected per day for each inspector, the rate of quality assurance re-inspections is approximately 8.5%, more than double the anticipated rate of approximately 3%. When the first step is implemented, the frequency of re-inspections will approach that which was anticipated.

IT also recommends that quality assurance inspections on "instrument cleared" residences which were done early in the Program be suspended. The fact that we sampled at a higher than originally planned frequency, coupled with the $Z_{J,m}$ being significantly below the low rate boundary, it is unlikely that completion of these inspections will materially change the error rate or our recommendations. Furthermore, these inspections would have to be scheduled with the homeowner and would require another intrusion into a residence that the homeowner thinks has been cleared.

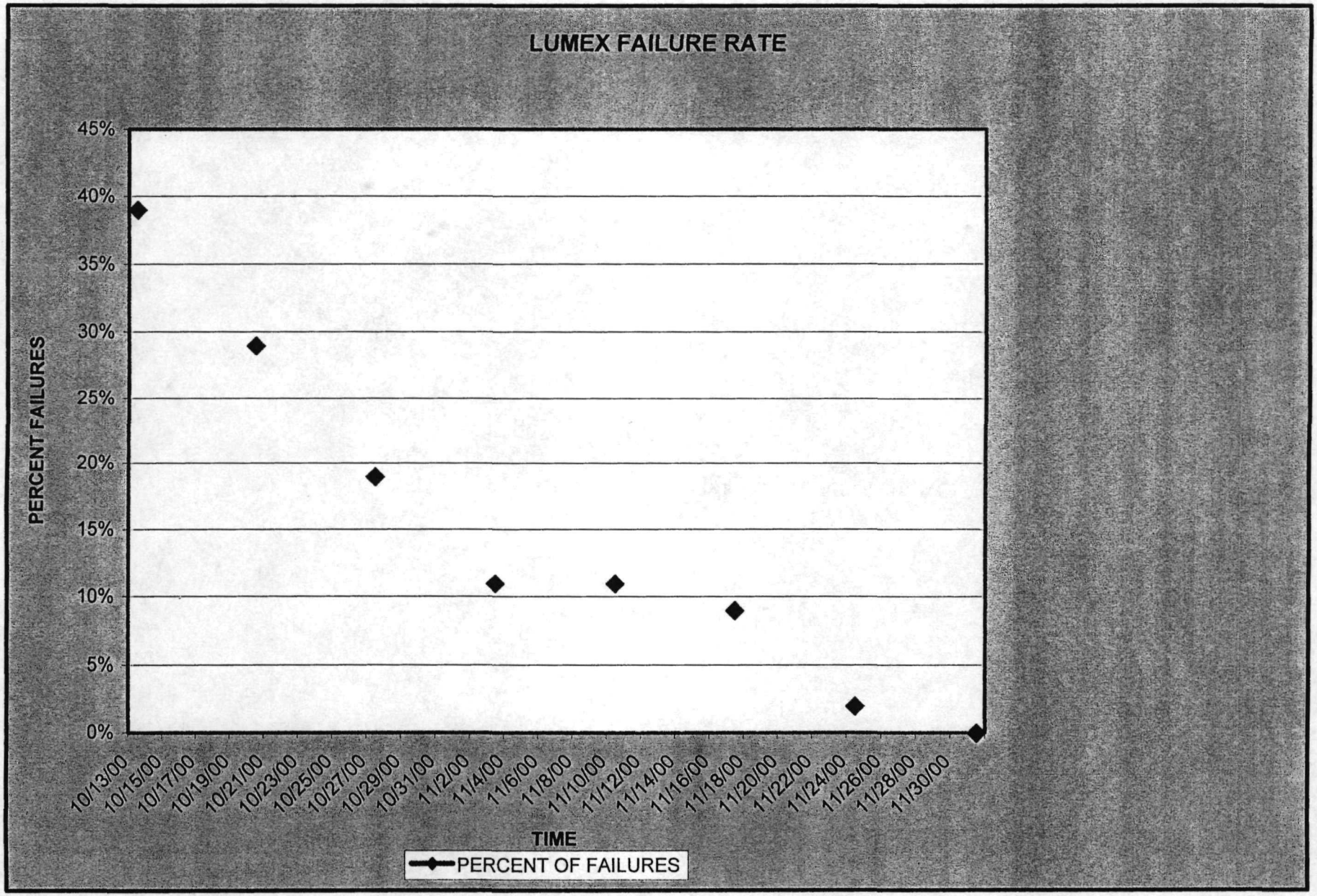
Cleanup Quality Assurance

At this time, IT recommends that the cleanup quality assurance continue to proceed. The oversight and implementation of the program by the IT Cleanup Quality Assurance Supervisors

has decreased the average duration from identification of a residence requiring cleanup to the verification of the cleanup at that residence from 18 days in early October to 5 days at the end of November. The implementation of IT's cleanup quality assurance procedures have also decreased the Lumex screening failure rate from 40% in early October to less than 5% at the end of November. These results demonstrate that the cleanup quality assurance program has greatly increased the efficacy of the cleanup activities.

Final Clearance Quality Control

At this time, IT recommends that the final clearance quality control continue to proceed as outlined in the Quality Assurance/Quality Control Plan. The oversight of the final clearance sample collection process continues to assure the proper placement and calibration of the sampling pumps and the maintenance of a legally defensible sample chain-of-custody. The review of the final clearance reports verifies the completeness and quality control compliance of the laboratory data included in the reports.


LUMEX FAILURE RATE
PERCENT FAILURES
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
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10/15/00
10/17/00
10/19/00
10/21/00
10/23/00
10/25/00
10/27/00
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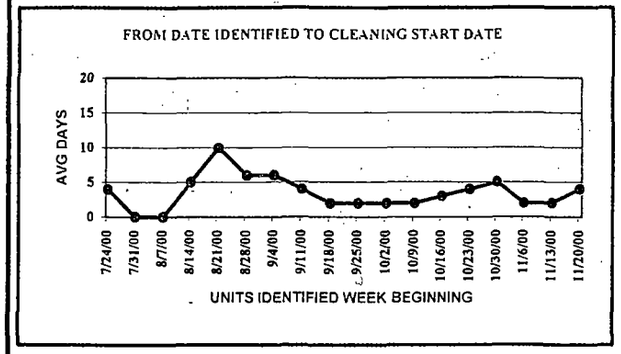
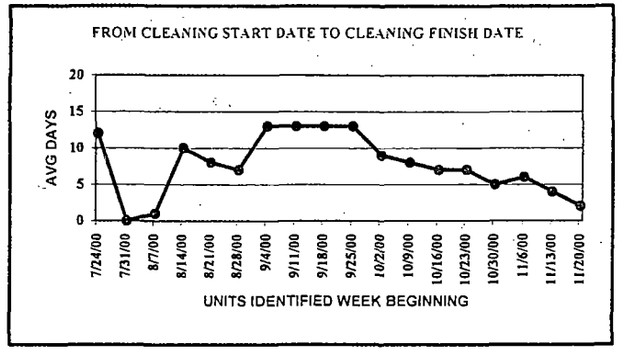
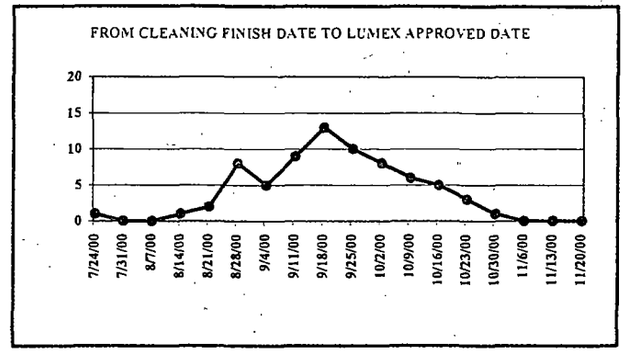
11/16/00
11/18/00
11/20/00
11/22/00
11/24/00
11/26/00
11/28/00
11/30/00
TIME
PERCENT OF FAILURES

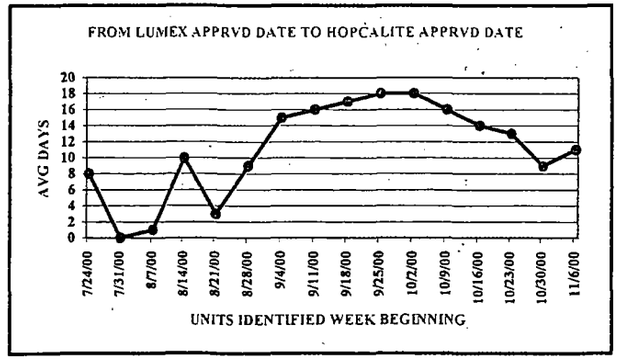
N0017112

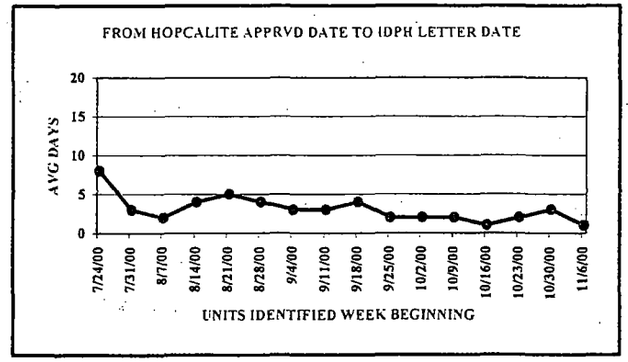
ITEM	PROPERTIES 1st IDENTIFIED DURING WEEK OF																							
	7/24/00	7/31/00	8/7/00	8/14/00	8/21/00	8/28/00	9/4/00	9/11/00	9/18/00	9/25/00	10/2/00	10/9/00	10/16/00	10/23/00	10/30/00	11/6/00	11/13/00	11/20/00	11/27/00	12/4/00	12/11/00	12/18/00	12/25/00	PRJT TO DATE
	AVERAGE NUMBER OF DAYS																							
DATE IDENTIFIED TO START CLEANING	4	3	0	5	10	6	6	4	2	2	2	2	3	4	5	2	2	4						3
CLEANING START TO CLEANING FINISH	12		1	10	8	7	13	13	13	13	9	8	7	7	5	6	4	2						10
CLEANING FINISH TO LUMEX APPROVED	1		0	1	2	8	5	9	13	10	8	6	5	3	1	0	0	0						7
LUMEX APPROVED TO HOP APPROVED	8		1	10	3	9	15	16	17	18	18	16	14	13	9	11								16
HOP APPROVED TO IDPH LETTER DATE	8	3	2	4	5	4	3	3	4	2	2	2	1	2	3	1								4
RELOCATION DATE TO OCCUPANCY DATE																								











DATA DATE = SATURDAY, NOVEMBER 25, 2000

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